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# **CHAPTER 7**

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### 7. HAZARDOUS MATERIALS SAFETY PROGRAM

### 7.1 HAZARDOUS PROPERTIES

- **A. TOXIC**: A great many chemicals are toxic. If allowed to enter the body through the nose, mouth, or skin, they can make you sick. Fumes, dust, and vapors from toxic materials can be especially harmful because they can be inhaled and pass quickly from the lungs into the blood.
- **B. CORROSIVE**: Materials like strong acids and bases can eat right through other substances including your clothing. If splashed on the skin or eyes, they can cause serious burns. Some of these materials form poisonous gases.
- **C. EXPLOSIVE**: Some materials can explode when they are exposed to heat or flame. Included in this category are materials like flammable liquids and compressed gases
- **D. FLAMMABLE**: This category includes all materials that catch fire easily, burn rapidly, spread quickly, and give off intense heat. Many materials used and stored in the workplace are flammable, including many solvents and lubricants.
- **E. REACTIVE**: These materials can burn when exposed to air or water and some when mixed with other substances. Reactive materials don't have to be near heat or flames to burn. They burn SPONTANEOUSLY and can also give off hazardous vapors.

### 7.2 WHEN WORKING WITH HAZARDOUS MATERIALS

- **A. PAY ATTENTION TO WARNING SIGNS**: They tell you hazardous materials are present and what you should and shouldn't do around them. Make sure you pay attention to these signs.
- **B. READ ALL LABELS CAREFULLY**: You should always read the labels on the containers of materials you handle. If no label is present, do not use the material until you've learned the necessary safety precautions.
- C. GET ADDITIONAL INFORMATION WHEN IN DOUBT: Because not all labels provide you with all the information you may need, you should turn to the Material Safety Data Sheet (MSDS) for that chemical for vital information about the hazardous materials in your work area. The MSDS's shall be placed in an open and obvious area for all employees to review as needed your supervisor can tell you where to find the MSDS you need.

# 7.3 A MATERIAL SAFETY DATA SHEET (MSDS) INFORMATION

- **A. IDENTIFY**: The first section of the MSDS tells you the name of the chemical. This is the same name that's on the container's label.
- **B. HAZARDOUS INGREDIENTS**: This section tells you the chemical names for all the substances that make up this particular hazardous material.
- **C. PHYSICAL/CHEMICAL CHARACTERISTICS**: Another section provides additional important information concerning the material's appearance and odor of the material, its boiling point, vapor pressure, vapor density, solubility in water, melting point, and evaporation rate.
- **D. FIRE AND EXPLOSION HAZARDS**: The MSDS will also tell you when the material might catch fire or explode and what you can do to deal with these hazards. Special instructions are included here.
- **E. REACTIVITY**: Some materials can burn or explode when exposed to air or water--or when mixed with other substances. These materials are reactive, and this section tells you the conditions under which these materials become dangerous, so that you can avoid exposing the material to these conditions.
- **F. HEALTH HAZARDS**: This is another very important section, because it tells you how the hazardous material could harm you. It tells you the symptoms of exposure and the emergency first-aid procedures to use in case of overexposure.
- **G. PRECAUTIONS FOR SAFE HANDLING AND USE**: Perhaps most important of all, this section contains detailed instructions for safe handling of the substance. It tells you how to store, move, and use these materials. In addition, this section tells you what to do in case of a spill or leak.
- **H. CONTROL MEASURES**: This section tells you what personal protective equipment to use when working with the material. It also lists safe work procedures and tells you how to clean up after working and before eating so that the material won't harm you or contaminate your food.
  - 1. There should be an MSDS for every hazardous materials in your workplace. Each MSDS provides you with valuable information about protecting yourself and your coworkers when working with or near the material. Make sure to read the MSDS for each hazardous material in your workplace and find out everything you need to know to work safely with these materials.
  - 2. Ask Questions If You Don't Understand. If after reading the warning label and the MSDS, you still have questions don't let them go unanswered! Ask your supervisor to explain.

Ask your supervisor, whenever...

- a. You're in doubt about the proper procedures for handling or use.
- b. You're not sure what safety equipment to use or what other precautions to take.
- c. You don't completely understand the safety rules.

### I. How To Protect Your Health:

- 1. Use the protective equipment required by your employer and use it properly and routinely.
- 2. Keep tools and work areas clean.
- 3. Keep work clothes clean and make sure they are in good condition. (Holes and tears allow chemicals to come in contact with the skin.)
- 4. Never wear clothes or safety equipment that has been contaminated by hazardous materials.
- 5. Remove contact lenses when entering work areas where chemical vapors may be present.
- 6. Wash according to instructions if any hazardous material splashes on you.
- 7. Always wash before applying makeup or lotion, and before putting on rubber gloves.
- 8. Wash at the end of your shift.
- 9. Smoke, eat or drink only in designated areas NEVER around hazardous materials. And be sure to wash hands first.
- 10. Dispose of all chemicals, contaminated rags, etc. according to required procedures usually into a covered container for daily disposal. But never assume that any covered trash container is to be used.
- 11. Clothing worn while handling hazardous materials should never be mixed with home laundry.
- 12. Overexposure to hazardous materials can:
- Make you feel dizzy.

- Make you sick to your stomach.
- Make your eyes, nose, and throat irritated.
- Give you skin rashes.
- Make you feel especially nervous, agitated, or sluggish.

If you feel any of these symptoms while working with or near hazardous materials notify your supervisor immediately.

# J. Chemicals In The Eyes

- 1. Don't rub the eye(s).
- 2. Hold the eyelid(s) open and flush eyes with clean water. Continue for 15 to 20 minutes.
- 3. Be careful not to contaminate the other eye.

### K. Chemicals On The Skin

- 1. Flush burned area thoroughly with lukewarm water for at least 5 minutes. Be sure to wash chemical away completely.
- 2. Remove clothing and jewelry from burn area. If clothing sticks to burn, do not try to remove it.
- Seek further medical attention.

# L. Ingestion

Induce vomiting **only** if instructed by MSDS. When chemicals have been swallowed, making the victim vomit may or may not be the right thing to do. Be prepared ahead of time by checking the MSDS for all chemicals in your work area.

Get immediate medical attention.

# M. Clothing On Fire

- 1. **STOP** moving around.
- 2. **DROP** to the ground with your arms across your chest.
- 3. **ROLL** on the ground in a rug or blanket if possible.

4. **COOL** burns with clean water. Never cover them with butter or grease. Chemical burns should receive immediate medical attention.

For specific first aid procedures for particular hazardous materials, read the emergency instructions on the MSDS.

Report all injuries to your supervisor and get further medical attention as soon as possible.

### 7.4 WORKING WITH HAZARDOUS MATERIALS

- **A.** Make sure hazardous materials are properly stored according to company rules.
- **B. Do not store materials in:** aisles, or where they are blocking exits.
- C. Make sure all containers are stored with labels showing.
- D. Make sure flammable and combustible materials are not stored near a heat source.
- E. Check for adequate ventilation.
- F. Eat, drink and smoke only in designated areas.
- **G. Double-check all containers and hoses** to make sure they are not leaking.
- **H. Keep containers closed** when not in use.
- I. Make sure all lids or caps are tightly closed before storing.
- J. Be alert to unusual odors, hidden leaks etc.
- K. Report missing labels, damaged containers, etc. to your supervisor.
- L. Never try to do a job you are not authorized to do.
- **M. Get help** from your supervisor or a coworker if you need it.
- **N.** Clean up all spills immediately following established procedures and using approved cleanup materials.
- O. Clean up your work area and any tools you have used.

### 7.5 HAZARD EVALUATION

### A. What Is Hazard Determination

Chemical manufactures and importers are required to evaluate the chemical produced in their workplaces or imported by them to determine if they are hazardous. Hazard determination procedures must be in writing and made available upon request to employees, NIOSH and OSHA.

### B. Written Procedures

When you document your hazard evaluation procedures, you should address the following:

- 1. The Person responsible for evaluating the chemicals.
- The sources of information consulted.
- Criteria used to evaluate the studies.
- 4. A plan for reviewing information to update the MSDS's, if new and significant health information is found.

These written procedures may be incorporated into the written hazard communication program.

# C. What Is Regulated?

Any substance that presents a physical of health hazard, as defined by OSHA, is considered regulated under the Hazard Communication Code. There are about 1,200 chemicals.

**IMPORTANT**: a substance may still be regulated even though it is not on any list.

### D. Hazard Determination

- 1. Sources of Hazardous Chemicals:
- a. Dept. of Labor and Employment Security, Division of Safety, Florida Administrative Code, Chapter 38I-30 Toxic Substances In the Workplace
- b. 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, OSHA

- c. Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment, American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition)
- 2. Sources of Carcinogenic Chemicals:
  - a. 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, OSHA
  - b. National Toxicology Program (NTP)
  - c. International Agency for Research on Cancer (IARC) Monographs.

# E. What is Exempt

With the Hazard Communication Standard, OSHA is attempting to reduce occupancy related illnesses and workplace exposures to hazards. The agency does not want to duplicate the efforts of other government agencies, therefore, a number of exemptions have been established under this standard.

- 1. Any hazardous waste, defined as regulated under RCRA
- 2. Tobacco or tobacco products
- 3. Wood or wood products, the standard was not intended to cover desks, chairs or doors if you have wood treated with formaldehyde andglueing or cutting it, this wood would be regulated.
- 4. Foods, drugs, cosmetics or alcoholic beverages in a retail establishment which are packaged for sale to consumers or are intended for personal consumption by employees while in the workplace.
- 5. Any consumer product which is used in the workplace in the same manner as normal consumer use and which use results in exposure which is no greater than exposures experienced by consumers.
- 6. Any drug when it is in solid final form for patient use
- 7. Articles a manufactured item which are formed to a specific shape of design during manufacture, has an end use function dependent upon its shape or design, and must not release or expose a hazardous chemical under "normal conditions of use".
- 8. Mixtures if the mixture has been tested as a whole, the results of such testing shall be used to determine whether it is hazardous. If the mixture has not been tested and it contains 1% or more of an ingredient

that is listed as a health hazard or 0.1% of an ingredient listed as a carcinogen.

### 7.6 LABELS

# A. Purpose of Labels

The purpose of labels on hazardous chemicals or on products containing them;

- 1. Is to warn about potential danger or significant risk. Labels are not intended to be either the sole source of information regarding the nature or identity of hazardous chemicals in the workplace.
- 2. OSHA's purpose for labels is that they serve as an immediate warning and as a reminder of the more detailed information provided in other formats (posters, MSDS's, notices, written programs etc.)
- 3. The Hazard Communication Standard contains specific labeling requirements. Labeling must be done on all hazardous chemicals that are shipped and that are used in the workplace. 29 CFR 1910.1200(f). This standard requires identity and hazard information.
- 4. The two most common systems of labeling are the NFPA and HMIS system. There is no one form of label mandated by this standard.

### B. Labels On Shipped Containers

Chemical manufactures, importers and distributors must make sure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked with the following information:

- 1. Identity of the hazardous chemical.
- Appropriate hazard warnings.
- 3. Name and address of the chemical manufacturer, importer or other responsible party.

### C. Labels on In-Plant Containers

Employers shall ensure that each container of hazardous chemical in the workplace is labeled, tagged or marked with the following information:

- 1. Identity of the hazardous chemical
- Appropriate hazard warnings.

- 3. Remember, labeling responsibilities for the employer are minimal. The majority of containers arrive already labeled. However there are several situations where you may need to label.
  - a. If an employee breaks down the received quantity into smaller containers for ease of handling.
  - b. If the containers of chemicals were purchased long ago
  - c. If a label falls off or is unreadable.

# D. What is a Hazard Warning?

The Hazard Communication Standard covers two types of hazards: physical and health hazards. The hazard warning (which must be on both shipped and inplant containers) must convey the hazard of the chemical. This is intended to be specific information regarding the hazard.

### 1. CHART A HAZARD CATEGORIES

HEALTH HAZARDS	PHYSICAL HAZARDS
Carcinogenic Acutely toxic Chronically toxic Reproductive toxin Irritant Corrosive Sensitizer Hepatotoxins Nephrotoxins Neurotoxins	Combustible liquids Compressed gas Compressed gas Flammable Organic peroxide Oxidizers Pyrophorics Unstable (reactive) Water-reactive

### **Health Hazards (cont.)**

Agents which damage the lungs, skin, eyes, or mucous membranes

Agents which act on the hematopoietic system

The specific target organ effect should be part of the hazard warning. If the substance attacks the lungs skin or the brain it must be indicated.

A warning of carcinogenicity (cancer causation) is required under certain circumstances.

# 2. CHART B TARGET ORGAN EFFECTS

a. Hepatotoxins ...... Chemicals which produce liver damage Signs and Symptoms .... Jaundice; liver enlargement Chemicals ...... Carbon tetrachloride, nitrosamines b. Nephrotoxins ...... Chemicals which produce kidney damage Signs & Symptoms...... Edema; proteinuria Chemicals ...... Halogenated hydrocarbon; c. Neurotoxins ...... Chemicals which effect nervous system Signs and Symptoms .... Narcosis; behavioral changes; decrease motor functions Chemicals ...... Mercury; carbon disulfide. d. Agents which act on the blood system ...... Decrease hemoglobin function, deprive body tissue of oxygen Signs & Symptoms...... Cyanosis; loss of consciousness Chemicals ...... Carbon monoxide; cvanides. e. Agents which damage the lungs ...... Chemicals which irritate or damage the pulmonary tissue Signs and Symptoms ... Cough; tightness in chest; shortness of breath Chemicals ...... Silica: asbestos f. Reproductive toxins .... Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis) Signs & Symptoms...... Birth defects; sterility Chemicals ...... Lead, DBCP

g. Cutaneous hazards ..... Chemicals which affect the dermal layer

h. Eye hazards ...... Chemicals which affect the eye of visual

of the body
Signs and Symptoms .... Defatting of the skin; rashes, irritation
Chemicals ....... Kenton's, chlorinated compounds

capacity

Signs & Symptoms...... Conjunctivitis; corneal damage

Chemicals ...... Organic solvents; acids

# E. Labels on Solid Metals

Many times a solid metal is exempt from labeling because it is considered an article, based on its downstream use. However, if the end use of the metal results in hazardous chemical exposure to the employees working with it, then it is not an article and must be labeled.

# F. Substance Specific Requirements For Labeling

OSHA has developed specific health standards for twenty-one substances. These standards are located in 29 CFR 1001-1101, Subpart Z with required handling methods, protective clothing, etc. Many of the standards require specific label requirements, which take precedence over the label requirements of the Hazard Communication Standard.

Department of Labor and Employment Security, Division of Safety, Florida Administrative Code Chapter 38I-40 Asbestos Management Program (enclosed)

If Monroe County employees work with any of the following substances, be sure to check the Subpart Z requirements.

2-Acetylaminofluorene

Acrylonitrile

4-Aminodiphenyl

Asbestos, trampoline, anthrophyllite, and acinolite

Benzene

Benzidine

bis-Chloromethyl ether

Coal tar pitch volatiles

Coke oven emissions

Cotton Dust

1,2-dibromo-3-chloropropane

3.3 -Dichcorobenzine

4-Dimethylaminoazobenzine

Ethylene oxide

Ethyleneimine

Inorganic arsenic

Lead

Methyl chloromethyl ether

alpha-Naphthylamine

beta-Naphthylamine

4-Nitrobiphenyl

N-Nitrosodimethylamine

beta-Propiolactone

Vinyl chloride

### G. Portable Container Exemption

There is an exception from labeling requirements for portable containers. A portable container is one which is filled from a labeled container by an employee who uses it immediately (during one work shift), no labeling is required in this case.

### H. Alternatives To Labeling Containers

OSHA does provide alternatives for hard to label containers. Supervisors may use signs, placards, process sheets, batch tickets, etc.

### I. The Role Of DOT Labels

The Department of Transportation (DOT) has detailed requirements for the marking of containers of shipped hazardous chemicals. OSHA labels used on shipping containers must not conflict with these requirements.

# J. National Fire Protection Association (NFPA)

The National Fire Protection Association (NFPA) has a marking system that it developed in 1961 intended to provide basic information for emergency personnel, so they can better evaluate what fire fighting techniques to employ.

There are three categories of hazards identified by the NFPA system - health, flammability and reactivity. The degree of severity is indicated numerically be five divisions ranging from "zero(0) - no special hazards" to "four (4) - severe hazards."

The diamond shaped label contains four colored squares, with a number appearing in each square. Besides having a blue square indicating health hazard, a red square representing flammability and reactivity symbolized by a yellow square A fourth square indicates a "special hazard," such as unusual reactivity with water. The usual symbol for alerting fire fighting personnel to the possible hazard of using water is the letter "W" with a line through the center.

# K. Hazardous Materials Identification System

Another system is the Hazardous Materials Identification system (HMIS). This system was developed by the National Paint and Coatings Association (NPCA). Thousands of substances are used in these products, many of which are toxic or require some special precaution in their handling. This system is to inform employees of the hazards encountered in the performance of their jobs and to promote the safe use of those hazardous substances.

The HMIS label and signs provide information on:

1. Chemical identity - may be chemical or common name

- 2. Degree of acute health, flammability and reactivity hazards each label contains three colored horizontal bars; blue for health, red for flammability a yellow for reactivity and each with its separate numerical coding. The degree of hazard is expressed in numerical rating (like NFPA) on a scale of 0 to 4, with 0 denoting a minimal hazard, 4 a severe hazard.
- 3. Proper personal protective equipment: A white bar at the bottom of the label contains a letter representing one or more personal protective devices that must be used when handling that substance.
- 4. Chronic health hazards

# L. Exemptions to the Labeling Requirements

OSHA does not want to duplicate what other agencies have established, requiring two labels that accomplish the same thing. Therefore, there is no labeling required under the HAZARD COMMUNICATION CODE for the following chemicals:

- 1. Any pesticide, labeled under Federal Insecticide, Fungicide and Rodenticide Act.
- 2. Any food, food additive, color additive, drug, cosmetic, medical or veterinary device labeled under the Federal Food, Drug and Cosmetic Act.
- 3. Any alcoholic beverage intended for non-industrial use labeled under the Federal Alcohol Administration Act.
- 4. Any consumer product or hazardous substance labeled under the Consumer Product Act.

NOTE: There is a "gray" area where you must use common sense. The rule of thumb is if the employee has the same degree of exposure to the chemical as he would have at home, do not worry about it. EXAMPLE: if an employee uses a cleanser to clean a sink twice a week that would be normal consumer exposure. However, if the employee is involved with cleaning every day, several hours a day, that would be beyond a consumer exposure and the supervisor must deal with the cleanser as a hazardous chemical.

### M. Posters in the Workplace

Under the Hazard Communication Standard there are no poster requirements. However, Florida-Right-to-Know act requires posters as an effective way to communicate several kinds of information to employees. This information includes the following responsibility as an employer.

- 1. Inform an employee of the listed toxic substances in the workplace.
- 2. Make available upon written request a form called a "Material Safety Data Sheet" which explains the proper ties and hazards of each listed toxic substance to which an employee, has been or may be exposed to in the workplace.
- 3. Provide instruction, within the first 30 days of employment and annually thereafter on the adverse health effects of each listed toxic substance with which an employee works with in your workplace, how to

use each of these substances safely and what to do in case of an emergency.

### 7.7 EMPLOYEE TRAINING PROGRAM

Under the Hazard Communication Standard, Monroe County must establish a training and information program for all employees routinely exposed to hazardous chemicals in their work area. This training must be provided at the time of initial assignment and whenever a new hazard is introduced into their work area. The regulations for training can be found in 29 CFR 1910.1200 (h)

Training serves to explain and reinforce the information presented to employees through labels and MSDS's. The use of labels and MSDS's will only be successful when workers understand the information presented and are aware of the actions to be taken to avoid or minimize exposure and the occurrence of adverse effects.

It is the goal of Florida-Right-to-Know and HAZARD COMMUNICATION CODE training to increase the employees knowledge of the chemicals they handle, so that they can handle them in a safe manner. If the training accomplishes that goal, Monroe County will have met OSHA's goal.

### A. The Hazards Communication Standard (HCS)

Employees must be informed of the existence of the HCS, what the standard requires and what it will do for them. The purpose of the HCS is to ensure that the hazards of all chemicals produced are evaluated and that information concerning these hazards is transmitted to both employers and employees. This information is transmitted through a safety training program that includes:

- Monthly safety training meetings
- 2. Initial training of use of chemicals upon employment
- Whenever a new hazard is introduced into the work area
- 4. Reading and reviewing labels
- 5. Reading and understanding the components of a MSDS
- 6. Provide MSDS's where and employees can easily find and review.

# B. Terminology

The language should be clarified during training. The less educated the employees are the more the supervisor needs to explain the terminology. Language barriers must be crossed to ensure safety to all employees. An employee should have a basic understanding of the chemical, use and information

### C. Material Safety Data Sheet

- 1. Determine ahead of time how much information is necessary and will be useful and understood by employees being trained.
- 2. Explain what an MSDS is and what its purpose serves.
- 3. Explain the categories (sections)
  - a. General Information
  - b. Ingredients
  - c. Physical Data
  - d. Fire & Explosion Hazard Data
  - e. Health Hazard Data
  - f. Reactivity Data
  - g. Environmental Protection Procedures
  - h. Special Protection Information
  - i. Special Precautions
- 4. What information is found in each section (what some of the terms mean) (do not overload with terminology)
- 5. Employees should understand what is relevant and important to their interaction to chemicals.
- 6. A definite understanding of Health Hazard Data, route of entry, overexposure and Special Protection Information must be understood.

### D. Labels

Labels are the most visible an most frequent contact employees will have with chemical information.

- 1. Labels are an immediate visual warning.
- 2. Employees must have a thorough understanding of how to interpret the information.
- 3. There is no standard format for labels. Employees need to know how to read the label or interpret NFPA and the HMIS system.

### E. The Written Program

The written program is how Monroe County has complied with the Hazard Communication Standard. It includes a hazardous chemical inventory and must be made available to employees.

The Monroe County Safety Policies and Procedures are the guidelines for workplace safety in Monroe County. This program includes compliance with all applicable OSHA regulation and Florida Administrative Codes pertaining to employee safety.

Documentation of all training is required in the following forms:

- 1. Employee Safety and Health Record, SAF-8, with the date and initials of the trainer or supervisor and employee.
- 2. Certificate of attendance with the date, name of instructor and type of training (sign in sheet).

This documentation should be made available upon request to:

- a. Personnel Department
- b. Safety Administrator
- c. OSHA inspector
- d. Florida Division of Safety, Safety Specialists

# F. Specific Chemicals

This section of the training program should comprise the largest part of the training program. Each employee should be given specific details on what chemicals the employee has contact with and how to safely handle those chemicals.

- 1. How to detect the presence of a leak.
- 2. How to properly dispose of unused chemicals.
- 3. How to properly store chemicals.
- 4. Not to keep or store unneeded chemicals.
- 5. How to communicate chemical storage to fire departments.
- 6. Certain chemicals have specific training requirements especially those in 29 CFR 1001-1101 Subpart Z

### G. Protective Equipment

A supervisor must explain the proper use of any protective equipment (goggles, respirators, ear plugs, etc.) that is required for the safe handling of chemicals.

- 1. Explain county policy for using protective equipment.
- 2. Where the equipment is kept.
- 3. Demonstrate how it is used.
- 4. When is the equipment to be used.
- 5. How to clean and store the equipment.

Remember, if an employee does not use the equipment and suffers an injury, the supervisor will be responsible for not enforcing the use of the protective equipment.

# H. First Aid and Emergency Procedures

Supervisors and employees must understand what emergency procedures should be used in the event of exposure or overexposure to the hazardous chemicals they work with. Supervisors should advise all new employees of who knows CPR and first aid and advise where first aid kits are located. Employees should know ahead of time where eye wash stations are located and should be advised upon employment where they can find information from MSDS.

### 7.8 SUBPART Z TRAINING PROCEDURES

OSHA's Subpart z, Toxic and Hazardous Substances, contains the regulations for 26 specific substances. These are materials that the Agency has determined are of particular concern. Therefore, an individual standard has been developed for each one, containing requirements for labeling, the use of protective equipment, medical surveillance, training etc.

ASBESTOS 1910.1001 (j)(5)

### Employee information and training

- 1. The employer shall institute a training program for all employees who are exposed to airborne concentrations of asbestos, tremolite, anthophyllite, actinolite or a combination of these minerals at or above the action level and ensure their participation in the program.
- 2. Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.
- 3. The training program shall be conducted in a manner which the employee is able to understand. The employer shall ensure that each employee is informed of the following:

- a. The health effects associated with asbestos, tremolite, anthophyllite, actinolite exposure;
- b. The relationship between smoking and exposure to asbestos, tremolite, anthophyllite, actinolite in producing lung cancer;
- c. The quantity, location, manner of use, release, and storage of asbestos, tremolite, anthophyllite, actinolite, and the specific nature of operations which could result in exposure to asbestos, tremolite, anthophyllite, actinolite;
- d. The engineering controls and work practices associated with the employee's job assignment;
- e. The specific procedures implemented to protect employees from exposure to asbestos, tremolite, anthophyllite, actinolite, such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment to be used;
- f. The purpose, proper use, and limitations of respirators and protective clothing;
- g. The purpose and a description of the medical surveillance program required by this section;
- h. A review of this standard, including appendices.
- 4. Access to information and training materials.

The employer shall make a copy of this standard and its appendices readily available without cost to all affected employees.